



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,560	07/19/2000	Jane C. Cheng	2000	2046

23455 7590 11/12/2003

EXXONMOBIL CHEMICAL COMPANY
P O BOX 2149
BAYTOWN, TX 77522-2149

EXAMINER

GRIFFIN, WALTER DEAN

ART UNIT PAPER NUMBER

1764

DATE MAILED: 11/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/619,560	Applicant(s) CHENG ET AL.	
	Examiner Walter D. Griffin	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-14 and 16-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-14 and 16-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 15, 2003 has been entered.

Response to Amendment

The rejections under 35 USC 112, first paragraph, as described in the office action mailed on May 14, 2003 are withdrawn in view of the amendment filed on September 15, 2003.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3-14, and 16-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaufman (3,385,906) in view of Cheng et al. (5,557,024).

The Kaufman reference teaches a process for producing cumene by alkylation followed by transalkylation of diisopropyl benzene. Specifically, the Kaufman reference teaches the reaction of benzene with propylene in the presence of an alkylation catalyst to produce cumene. See column 5, lines 41-43. The resulting cumene-containing product is separated to remove a majority of the cumene. The remaining effluent is then combined with benzene and is transalkylated. See 2, lines 15-25. This transalkylation step would necessarily produce by-products as claimed. The Kaufman reference teaches Zeolite Y as a preferred molecular sieve for use in preparing transalkylation catalysts. See column 3, lines 49-50. The Kaufman reference also teaches the liquid phase conditions referred to in claim 11 through the language in column 6 lines 25-26 referring to "benzene and liquefied propylene" and through the conditions referred to in column 5, lines 4-15. Kaufman teaches temperature conditions ranging from 130°C to 250°C, and pressure conditions ranging from 75 psig to about 450 psig (5.2 – 31 Bar) with conditions preferably at 95 psig to 145 psig to maintain the liquid phase. See column 5 lines 4-20.

The Kaufman reference does not disclose the mixture of two different molecular sieves and does not disclose a process whereby the transalkylation catalyst is produced by co-extrusion as described in claim 6. Kaufman also does not teach a weight percentage of the transalkylation catalyst as it relates to the crystalline sieves as in claims 5 and 18. Kaufman also does not teach the alkylation catalyst of claim 14.

The Cheng reference teaches the use of MCM-49, MCM-22, zeolite Y, zeolite beta, and mordenite as transalkylation catalysts. See col. 14, lines 27-30. It also teaches the use of MCM-56 as an alkylation catalyst as in claim 14. See column 1. Furthermore, the reference uses TEA mordenite as a transalkylation catalyst as in claim 4. See column 14, lines 34-39. The Cheng reference teaches forming a catalyst by extrusion. See Examples 11 and 12, column 21.

It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the process of Kaufman by utilizing a combination of catalysts as claimed because Cheng discloses that each of these substances is individually used as transalkylation catalysts. Therefore, the use of a combination of them including the claimed combination, in any weight percent including those claimed, to serve as a transalkylation catalyst would be expected to result in effective transalkylation. In re Kerkhoven, 626 F.2d 846, 850 (CCPA 1980).

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Kaufman by co-extruding the catalyst because Cheng discloses extrusion as a common method for production of a catalyst. Therefore, co-extrusion of two or more zeolites would be expected to produce a catalyst.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Kaufman by utilizing MCM-56 alkylation catalyst as disclosed by Cheng because MCM- 56 has high activity and selectivity for the desired alkylated product.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized TEA-mordenite having a crystal size as claimed because it is an effective transalkylation catalyst as disclosed by Cheng and any crystal size that results in effective contact between the feed and catalyst would be expected to function effectively in the process.

Response to Arguments

The argument that the Kaufman reference does not disclose or suggest the combination of MCM-22 type material with either zeolite beta or mordenite is not persuasive. The examiner admits that the Kaufman reference does not suggest this but reminds applicant that the rejection is based on a combination of the Kaufman and Cheng references. With this in mind, the examiner asserts that there is sufficient motivation provided in the Cheng reference to use a combination of the claimed catalysts in the process of Kaufman. This motivation flows from the teaching that the catalysts individually are effective in a process that is similar to the Kaufman process. One of ordinary skill in the art would expect a combination of known effective catalysts to also be effective.

The argument concerning unexpected and superior results produced by the process is not persuasive. As stated in previous office actions, the experimental data to show superior results

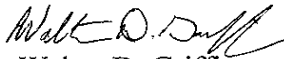
are not commensurate in scope with the claimed invention. The claims are not limited to the data points provided and there is no reason to believe that the limited data provided could be extrapolated to all percentage combinations of the catalysts.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.


Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
November 6, 2003